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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,288	06/14/2001	Jeremy Sommer	SYMM:035US/JJB	6867

7590 11/30/2004

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EXAMINER	
PERILLA, JASON M	
ART UNIT	**PAPER NUMBER**
2634	

DATE MAILED: 11/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,288	SOMMER, JEREMY	
	Examiner	Art Unit	
	Jason M Perilla	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *19-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/02 10/01*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-23 are pending in the instant application.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-18, drawn to a loopback transceiver, classified in class 375, subclass 221.

II. Claims 19-23, drawn to a receiver apparatus, classified in class 375, subclass 316.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions have different modes of operation because the method of a loopback transceiver performs a different function than a receiver apparatus.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with John J. Bruckner on November 5, 2004 a provisional election was made with traverse to prosecute the invention of group I, claims 1-18. Affirmation of this election must be made by applicant in replying to this Office

action. Claims 19-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Information Disclosure Statement

6. The information disclosure statements (IDS) submitted on October 1, 2002 is in compliance with the provisions of 37 CFR 1.97. Accordingly, it is being considered by the examiner. The information disclosure statement submitted on December 30, 2002 is a duplicate of the IDS submitted on October 1, 2002. Therefore, the IDS submitted on December 30, 2002 is not considered because it only contains duplicate references.

Drawings

7. The drawings are objected to because the reference numbers are not dark enough to be clearly distinguished (figs. 7-12). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by

the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

8. The disclosure is objected to because of the following informalities:

The first full paragraph of page 7 should be updated with the appropriate serial numbers.

Appropriate correction is required.

Claim Objections

9. Claims 5 and 18 are objected to because of the following informalities:

Regarding claim 5, in line 1, "signal path composes" should be replaced by –signal path comprises--.

Regarding claim 18, the claim is nearly indefinite because "the loopback response" of line 2 is lacking antecedent basis, and the injection of the loopback response as an upstream signal is also lacking antecedent basis in the claim. The Examiner is unable to make a suggestion for correction and the Applicant is requested to correct the language of the parent claims to provide a clear basis for the limitations of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1-10, 13-15 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Sestan (US 4635260).

Regarding claim 1, Sestan discloses a method, comprising: obtaining a sample of a downstream signal (col. 3, lines 50-55) conveyed along a signal path (fig. 1, signal path between references 10 and 20(1)); performing an analysis or error detection of the sample (fig. 1, ref. 30(1); col. 4, lines 5-10); determining a presence or an absence of a fault in the signal path based on the analysis of the sample (col. 6, lines 9-15); indicating a presence or an absence of a fault in the signal path by transmitting a diagnostic signal to an upstream node (col. 2, lines 16-28; col. 5, lines 3-4); and if the presence of the fault is indicated, isolating a location of the fault as a function of the diagnostic signal (col. 2, lines 30-40). Sestan discloses by figure 1 a digital telemetry system having repeaters which return information about the channel or path of the system (col. 1, line 57-col. 2, line 65). Each repeater contains an error detector (fig. 1, ref. 30(1)) and an error counter (fig. 1, ref. 31(1); col. 2, lines 60-65). It is inherent that the error counter obtains samples sent downstream from the central office (CO) (fig. 1, ref. 10) to perform the error detection. The analysis of the sample is the error detection and it is used to determine the number of errors generated. Further, each of the repeater units (plural) is capable of determining and returning to the CO eight answer responses (ANS) in reply to an interrogation signal (INT) from the CO (col. 1, lines 50-55). Therefore, the determination of the presence or absence of a fault in the signal path is embodied as the information signals (ANS) available as responses to the INT command from the CO. For instance, determination of a presence of a fault could be

one of either the lack of pulse (col. 6, lines 10-15; "1") determination or the determination of an error rate in excess of 1/1000 (col. 6, lines 10-15; "2"). When the INT signal is supplied from the CO (fig. 1, ref 10) to the repeater (fig. 1, ref 20(1)), the ANS or determination of the signal path fault presence is transmitted to the upstream node (fig. 1, ref. 10; col. 2, lines 25-65). Finally, if the presence of a fault is indicated, it is necessarily located according to the response signal because each of the response signals is associated with a particular repeater (col. 2, lines 30-35; col. 4, line 65-col. 5, line15). Sestan indeed discloses that the CO is able to determine the location of a failure in the telemetry channel (col. 5, line 9).

Regarding claim 2, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses that isolating includes identifying a cause of the fault as a function of the diagnostic signal. A cause is indicated by one of the eight responses (ANS) from the repeater transmitted to the central office upon the reception of an interrogation request (INT) (col. 6, lines 19-16) which is further described as applied to claim 1 above. For instance, determination of a presence of a fault could be one of either the lack of pulse (col. 6, lines 10-15; "1") determination or the determination of an error rate in excess of 1/1000 (col. 6, lines 10-15; "2").

Regarding claim 4, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses that the upstream node (fig. 1, ref. 10) includes a telemonitoring terminal (col. 3, lines 28-30) or central office as broadly as claimed because the telemonitoring terminal is considered to be a central office.

Regarding claim 5, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses that the signal path comprises a data transmission line (abstract; col. 1, lines 10-15) or digital subscriber loop as broadly as claimed because the data transmission line is considered to be a digital subscriber loop.

Regarding claim 6, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses injecting the diagnostic signal into an upstream signal via switch 41(1) (fig. 1; col. 4, lines 6-10); amplifying the upstream signal (fig. 1, ref. R1r); and transmitting the upstream signal to the upstream node (col. 4, lines 8-10).

Regarding claim 7, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses generating a loopback command or interrogation (INT) signal at the upstream node or supervisory terminal (fig. 1, ref. 10; col. 4, lines 47-50); injecting the loopback command into the downstream signal via transmitter amplifier R0t of figure 1; transmitting the downstream signal from the upstream node via the signal path (inherent); filtering the loopback command out of the downstream signal (fig. 1, ref. 28(1); col. 3, lines 61-63); detecting the loopback command (fig. 1, ref. 36(1); col. 4, lines 18-22); and executing the loopback command (fig. 5, col. 4, lines 43-65).

Regarding claim 8, Sestan discloses the limitations of claim 7 as applied above. Further, Sestan discloses monitoring a characteristic of the downstream signal as applied to claim 1 above. For instance, monitoring a characteristic of the downstream signal could be monitoring the error rate of the downstream signal (fig, 1. refs. 30(1) and 31(1); col. 4, lines 3-10).

Regarding claim 9, Sestan discloses the limitations of claim 7 as applied above. Further, Sestan discloses generating a loopback response signal as a function of both the loopback command and the characteristic of the downstream signal. Sestan discloses that the loopback response (ANS) is a function of both the loopback command (INT) and the characteristic of the downstream signal (i.e. bit error rate). Because the loopback command or interrogation (INT) results in the loopback response (ANS) (col. 4, lines 6-10), it is inherent that the loopback response is a function of the loopback command or interrogation signal. Further the loopback response comprises information related to the characteristic of the downstream signal (i.e. bit error rate) (col. 2, lines 50-55), and the loopback response is therefore a function of the characteristic of the downstream signal.

Regarding claim 10, Sestan discloses the limitations of claim 1 as applied above. Further, Sestan discloses amplifying the downstream signal via the telemonitoring terminal transmitter amplifier (fig. 1, ref. R0t; col. 3, lines 54-56).

Regarding claim 13, Sestan discloses the limitations of claim 7 as applied above. Further, the loopback command (INT) of Sestan occupies a frequency band in common with the downstream signal because, as broadly as claimed, the frequency band of the loopback command may be arbitrarily understood to overlap the frequency band of the downstream signal.

Regarding claim 14, Sestan discloses the limitations of claim 9 as applied above. Further, the loopback command (INT) of Sestan occupies a frequency band in common with the downstream signal because, as broadly as claimed, the frequency band of the

loopback command may be arbitrarily understood to overlap the frequency band of the downstream signal.

Regarding claim 15, Sestan discloses the limitations of claim 7 as applied above. Further, the isolation of the faults in the signal path is a function of the loopback response because the loopback response contains the information regarding the state of the various repeaters. When the loopback command INT signal is supplied from the CO (fig. 1, ref 10) to the repeater (fig. 1, ref 20(1)), the loopback response ANS or representation of the signal path fault presence is transmitted to the upstream node (fig. 1, ref. 10; col. 2, lines 25-65). Finally, if the presence of a fault is indicated, it is necessarily located according to the response signal because each of the response signals is associated with a particular repeater (col. 2, lines 30-35; col. 4, line 65-col. 5, line15).

Regarding claim 17, Sestan discloses the limitations of claim 9 as applied above. Further, the loopback response inherently occupies a frequency band, and the frequency band is specific to a repeater that it originates from. As broadly as claimed, any one of the repeaters (i.e. fig. 1, ref. 20(1)) of Sestan or "a repeater" will generate a loopback response as applied above which is occupied in a frequency band (inherent) or any frequency band that is specific to the repeater from which it originates.

Regarding claim 18, Sestan discloses the limitations of claim 7. Sestan further discloses filtering out the loopback response (fig. 1, refs. R0r and "TELEMETRING EXCHANGE"; col. 2, lines 21-23) from the upstream signal and detecting the loopback response at the upstream node (col. 2, lines 23-26).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sestan in view of Kelsey et al (US 5600656; hereafter "Kelsey").

Regarding claim 11, Sestan discloses that limitations of claim 7 as applied above. Sestan does not explicitly disclose analyzing the loopback command for code sequence and parity characteristics. However, Kelsey teaches an analogous loopback method (fig. 1; abstract) wherein repeaters are instructed to go into a loopback state according to a particular command sequence (col. 3, lines 38-51). Kelsey teaches that it is advantageous to use a loopback command sequence such that erroneous detection of the command sequence is unlikely (col. 1, lines 50-55; col. 3, lines 47-51). Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a particular command sequence as taught by Kelsey as the interrogation command of Sestan because it could be used to avoid the erroneous detection of the loopback command. Because Kelsey discloses that the particular sequences (col. 3, lines 38-47; "5775H", XX7EH", and "555EH") are detected, the particular sequence of the command is thereby analyzed. Further, it is inherent that the parity, or number of 1's, is analyzed because the sequence itself is analyzed which leads to the number of 1's being analyzed.

13. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sestan in view of Kelsey and in further view of Breif et al (US 5566203; hereafter "Breif").

Regarding claim 12, Sestan in view of Kelsey disclose the limitations of claim 11 as applied above. Sestan discloses that the interrogation signal from the upstream node (fig. 1, ref. 10) is received by the interrogation receiver (fig. 1, ref. 36(1); col. 3, lines 39-40), but Sestan in view of Kelsey do not explicitly disclose that the analysis of the loopback command by the interrogation receiver is accomplished by executing a set of instructions on a data processor. However, the use of micro-controllers or data processors is notoriously known in the art due to their flexibility and Breif discloses the use of a micro-controller in a repeater method (fig. 1, ref. 9; col. 6, lines 54-58) which is analogous to the method of Sestan in view of Kelsey. A micro-controller inherently performs the execution of instructions to obtain utility. In the case of the teachings of Brief, the micro-controller processor programs bits within the repeater and determines information regarding the state of the loop (col. 4, lines 15-22; col. 9, lines 9-16). However, it would have been readily apparent to one having ordinary skill in the art that the micro-controller of Breif could be used to perform an analysis of the loopback command by the execution of instructions. Further, one skilled in the art would understand that the micro-controller of Breif could be advantageously utilized to perform many functions in the repeater of Sestan in view of Kelsey because of the flexibility of the software executed on it. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a micro-controller or data processor as taught by Breif in the method of Sestan in view of Kelsey

because the processor could be advantageously be utilized to analyze the loopback command as well as perform other tasks of the repeater system easily by only the use of software instructions.

14. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sestan in view of Nguyen et al (US 6333920; hereafter "Nguyen").

Regarding claim 16, Sestan discloses the limitations of claim 7 as applied above. Sestan does not explicitly disclose that the upstream and downstream frequency bands are separated by frequency division duplexing. However, Nguyen teaches (fig. 1) a communications method wherein the upstream signals (US) and the downstream signals (DS) are frequency division duplexed to provide for less interference between the channels (col. 3, lines 43-47; col. 4, lines 30-34). Nguyen teaches that the frequency separation reduces near-end cross talk at the upstream node. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize frequency division duplexing in the method of Sestan as taught by Nguyen because it would lead to the separation of the upstream and downstream channels and less near-end cross talk which is undesirable.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art of record not relied upon above is cited to further show the state of the art with respect to loopback repeater methods.

U.S. Pat. No. 4713810 to Chum.

U.S. Pat. No. 5166890 to Smischny.

U.S. Pat. No. 4604745 to Takasaki et al.

U.S. Pat. No. 5422929 to Hurst et al.

U.S. Pat. No. 3917916 to Ghosh et al.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Perilla whose telephone number is (571) 272-3055. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jmp

Jason M. Perilla
November 9, 2004

jmp

CHIEH M. FAN
PRIMARY EXAMINER